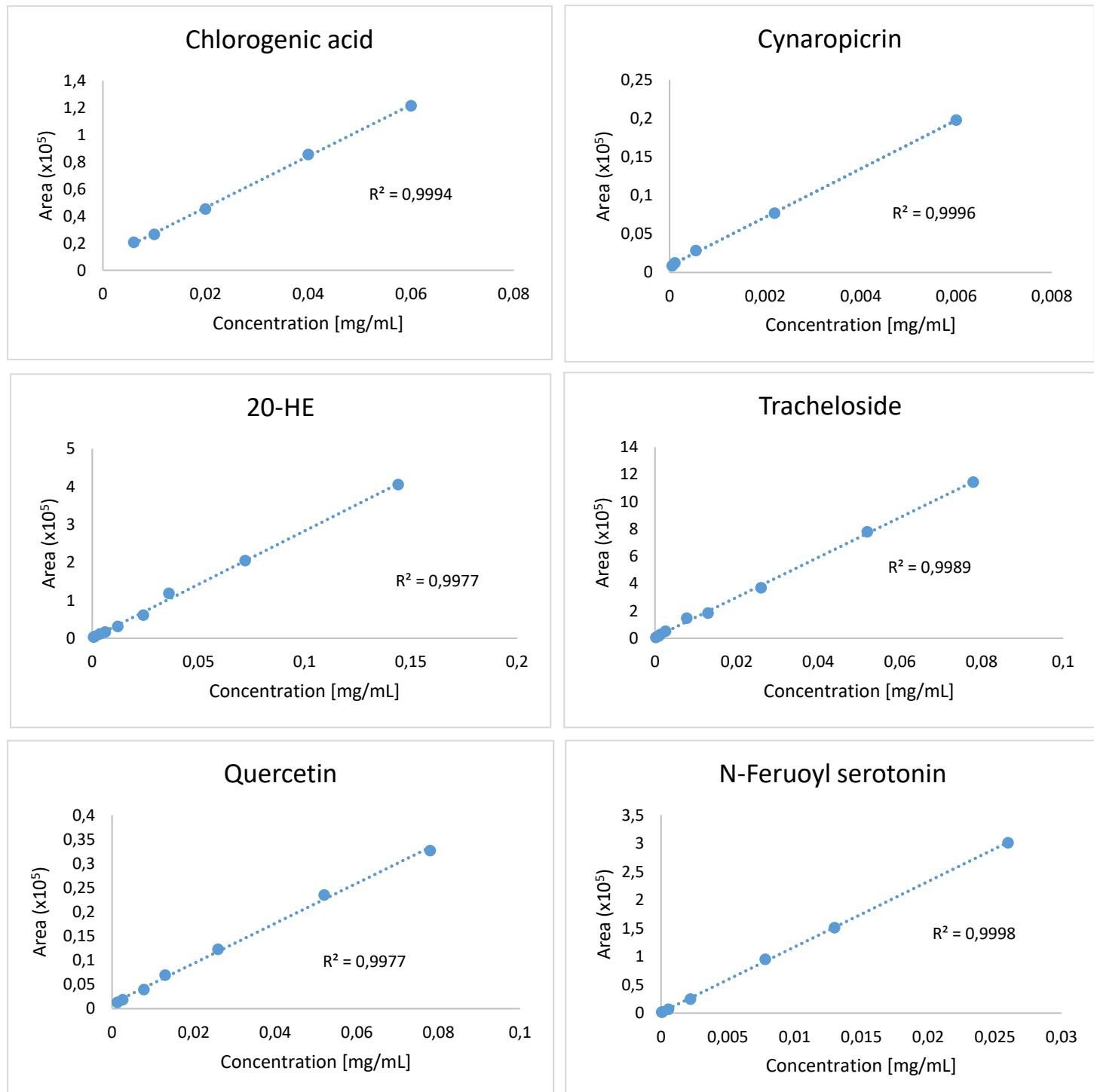
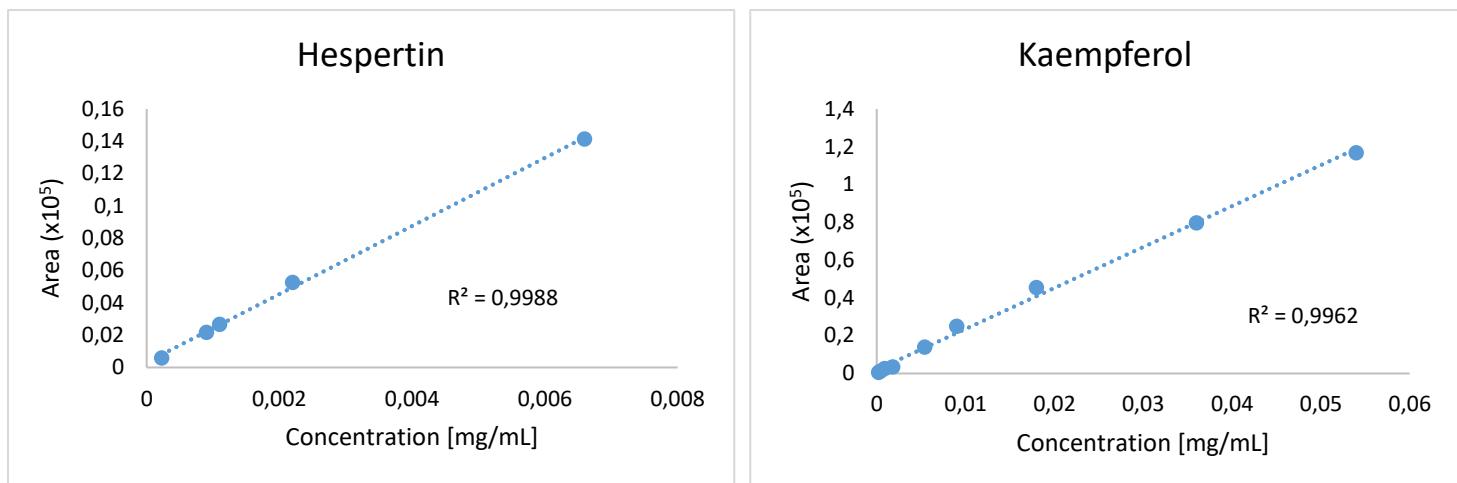


## SUPPORTING INFORMATION

### Method validation

**Figure S1** – Calibration curves of targeted analytes





**Table S1** – Repeatability (intra-day and inter-day) of the method for all the compounds

Compounds	Precision (RSD %)		Accuracy (%)	
	Intra-day	Inter-day	Intra-day	Inter-day
<b>Chlorogenic acid</b>	0.80	1.89	99.8	89.3
<b>Cynaropicrin</b>	1.05	1.51	111.3	101.9
<b>20-HE</b>	0.27	0.61	99.3	103.0
<b>Tracheloside</b>	0.95	1.67	102.3	101.6
<b>Quercetin</b>	0.84	1.63	102.9	93.6
<b>N-Feruloyl serotonin</b>	0.80	1.47	100.6	89.3
<b>Hesperetin</b>	1.02	1.65	99.1	100.6
<b>Kaempferol</b>	1.70	1.84	102.4	101.6

**Table S2** – Concentration and recovery of bioactive compounds in *R. carthamoides*

	<b>Analyte</b>	<b>Content (<math>\mu\text{g}</math>)</b>	<b>Added (<math>\mu\text{g}</math>)</b>	<b>Recovered (<math>\mu\text{g}</math>)</b>	<b>Recovery (%)</b>	<b>RSD (%)</b>	<b>TPC (<math>\text{mg/g}_{\text{ex.}}</math>)</b>	<b>TFC (<math>\text{mg/g}_{\text{ex.}}</math>)</b>
<b>Sample 1 PLE</b>	Chlorogenic acid	50.00	50.00	100.67	101.40			
	Cynaropicrin	3.68	4.00	7.60	97.97			
	20-HE	64.30	65.00	130.00	101.15			
	Tracheloside	20.33	20.00	40.00	98.36			
	Quercetin	9.13	9.00	18.10	99.61	<b>1.92</b>	<b>8.75</b>	<b>0.74</b>
	N-Feruloyl serotonin	1.72	1.50	3.26	102.53			
<b>Sample 2 SOX</b>	Hesperetin	1.15	1.50	2.60	96.93			
	Kaempferol	2.32	2.50	4.81	99.40			
	Chlorogenic acid	106.99	105.00	211.44	99.47			
	Cynaropicrin	6.08	6.00	11.98	98.32			
	20-HE	100.58	100.00	199.34	98.76			
	Tracheloside	23.66	25.00	48	97.34			
<b>Sample 3 MAC</b>	Quercetin	4.36	4.50	8.8	98.58	<b>1.60</b>	<b>16.30</b>	<b>2.59</b>
	N-Feruloyl serotonin	1.22	1.20	2.42	100.31			
	Hesperetin	1.49	1.50	3.00	101.00			
	Kaempferol	0.00	2.00	1.98	99.00			
	Chlorogenic acid	84.79	85.00	169.50	99.65			
	Cynaropicrin	6.08	6.00	12.10	100.30			
	20-HE	133.89	133.00	266.75	99.89			
	Tracheloside	3.82	4.00	7.73	97.78			
	Quercetin	10.81	11.00	22.00	101.75	<b>1.48</b>	<b>22.23</b>	<b>2.44</b>
	N-Feruloyl serotonin	1.11	1.10	2.21	100.15			
	Hesperetin	0.00	2.00	1.95	98.00			
	Kaempferol	0.00	1.00	0.98	97.50			

RSD – relative standard deviation; TPC – total phenolic content; TFC – total flavonoid content; mg/g<sub>ex</sub> – mass concentration on gram of extract

### **Stability study**

To investigate analytes stability, one standard sample and three extract samples were analysed. Both were solved in methanol with concentration of 0.2 mg/mL of standard sample, while extract samples obtained by each mentioned extraction method were prepared with final concentration of 5 mg/mL.

Thermal stability was tested for up to 5 days at -30 °C degrees, for 48 hours at laboratory temperature (25 °C), while stability under elevated temperature (45 °C) and various pH conditions was tested for 48 hours at shorter time intervals (0, 2, 4, 8, 16, 24, and 48 hours). In the guidelines, the %RSD, which represent the measure of stability of compounds is set up to 2% [19].

**Table S3** – Stability of individual compounds stored in dark for 48 hours (n=3)

Conditions	Standard degradation [%]*	Extract degradation [%]*	RSD [%]	
	25 °C		-30 °C	
<b>Chlorogenic acid</b>	1.26	3.58	1.26	1.14
<b>Cynaropicrin</b>	1.00	2.77	1.01	0.94
<b>20-HE</b>	1.44	2.68	1.55	1.83
<b>Tracheloside</b>	0.72	2.34	0.71	1.18
<b>Quercetin</b>	1.06	2.95	1.12	1.31
<b>N-Feruloyl serotonin</b>	0.49	1.71	0.52	0.56
<b>Hesperetin</b>	0.97	3.18	1.06	0.94
<b>Kaempferol</b>	0.83	2.44	0.86	1.05